

II. Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-37 (Cancelled)

38. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells, comprising:

- (a) obtaining sperm cells of a species from a species of a male mammal;
- (b) sorting said sperm cells, without the presence of protective compounds in seminal plasma, and based upon sex-type to create a collection of sex-selected sperm cells;
- (c) cooling said sex-selected sperm cells;
- (d) ~~isolating at least some of said sex-selected sperm cells to create a collection of isolated sex-selected sperm cells;~~
- [(e)] d. suspending ~~at least some of~~ said isolated sex-selected sperm cells in an extender to at least about 5 million per milliliter of extender to at least about 10 million per milliliter of extender, and;
- [(f)] e. freezing said isolated sex-selected sperm cells in said extender; and
- (g) ~~thawing said isolated sex-selected sperm cells to provide fertile sex selected sperm cells.~~

39. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, wherein said sperm cells from said species of said male mammal are selected from the group consisting of bovine sperm cells and equine sperm cells.

40. (Withdrawn/Currently amended)

A method of freezing cryopreserving sperm cells as described in claim 39, and further comprising the wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of bovine sperm cells between about 300,000 and about 3,000,000.

41. (Withdrawn/Currently amended)

A method of freezing cryopreserving sperm cells as described in claim 39, and further comprising the wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of bovine sperm cells of no more than about 1,000,000.

42. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, wherein said sperm cells from said species of said male mammal comprise equine sperm cells.

43. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 42, and further comprising the wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of equine sperm cells between about 1,000,000 million and about 25,000,000.

44. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 42, and further comprising the wherein said step of isolating at least some of said sex-selected sperm cells comprises isolating a number of equine sperm cells of no more than about 5,000,000.

45. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, wherein said step of cooling sex-selected sperm cells comprises reducing the temperature of said sex- selected sperm cells to about 5°Celsius.

46. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 45, wherein said step of reducing the temperature of said sex-selected sperm cells comprises reducing the temperature of said sex-selected sperm cells over a for a period of about 60 minutes to about 240 minutes.

47. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, wherein said extender further comprises a component which maintains osmolality and buffers pH.

48. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of a buffer comprising a salt, a buffer containing a carbohydrate, and any combination thereof.

49. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of sodium citrate, Tris[hydroxymethyl]aminomethane, 200mM Tris[hydroxymethyl]aminomethane, 175 mM to 225mM Tris[hydroxymethyl] aminomethane, 200 mM Tris[hydroxymethyl]aminomethane/65mM citric acid monohydrate, 175 mM to 225mM Tris[hydroxymethyl]aminomethane/50mM to 70mM citric acid monohydrate, N-Tris [hydroxymethyl]methyl-2-aminoethanesulfonic acid, 200 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid, 175 mM to 225 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid, 200 mM Tris[hydroxymethyl]

methyl-2-aminoethanesulfonic acid/65 mM citric acid monohydrate, 175 mM to 225 mM Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid/50mM to 70 mM citric acid monohydrate, monosodium glutamate, milk, HEPES buffered medium, and any combination thereof.

50. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 47, 48, or 49, wherein said extender has a pH in the range of about 6.5 to about 7.5.

51. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 50, wherein said extender further comprises a cold shock protectant.

52. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 51, wherein said cold shock protectant is selected from the group consisting of egg yolk, 20% egg yolk, 15% to 25% egg yolk, an egg yolk extract, milk, a milk extract, casein, albumin, lecithin, and any combination thereof.

53. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 51, wherein said extender further comprises an energy source.

54. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 53, wherein said energy source is selected from the group consisting of a saccharide, glucose, fructose, 56 mM fructose, 45mM to 60mM fructose, mannose, and any combination thereof.

55. (Withdrawn/Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 53, wherein said extender further comprises an antibiotic.

56. (Withdrawn/Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 55, wherein said antibiotic is selected from the group consisting of tylosin, gentamicin, lincomycin, linco-spectin, spectinomycin, penicillin, streptomycin, and any combination thereof.

57. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 47, 51, 53, or 55, wherein said extender further comprises a cryoprotectant.

58. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 57, wherein said cryoprotectant is selected from the group consisting of disaccharides, trisaccharides, and any combination thereof.

59. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 57, wherein said cryoprotectant is selected from the group consisting of glycerol, 6% glycerol, between 5% to 7% glycerol, dimethyl sulfoxide, ethylene glycol, propylene glycol, and any combination thereof.

60. (Withdrawn/Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, wherein the extender in which ~~at least some of~~ said sex-selected sperm cells are suspended comprises glycerol, sodium citrate, Tris[hydroxymethyl]aminomethane, egg yolk, fructose, and one or more antibiotics.

61. (Withdrawn/Currently amended) -

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, wherein the extender in which ~~at least some~~ of said sex-selected sperm cells are suspended comprises glycerol, sodium citrate, egg yolk, and one or more antibiotics.

62. (Withdrawn/Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, wherein the extender in which ~~at least some~~ of said sex-selected sperm cells are suspended comprises glycerol, egg yolk, milk, fructose, and one or more antibiotics.

63. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 38, further comprising the step of equilibrating ~~at least some~~ of said sex-selected sperm cells suspended in said extender to a cooler, non-freezing temperature for a period of time prior to freezing ~~over a~~ for a period of about 1 hour to about 18 hours.

64. (Currently amended)

A method of freezing cryopreserving sex-selected sperm cells as described in claim 59, further comprising the step of equilibrating ~~at least some~~ of said sex-selected sperm cells suspended in said extender to a cooler, non-freezing temperature for a period of time prior to freezing over a period of not greater than 6 hours.

65. (Withdrawn)

A frozen sex-selected sperm sample in accordance with the method of claim 38.

66. (Canceled)

67. (Withdrawn/Currently amended)

A method of freezing cryopreserving sperm cells as described in claim 38, wherein said step of freezing said sex-selected sperm cells in said extender comprises freezing a number of bovine sperm cells between about 300,000 and about 5,000,000.